

Remarks

Claims 1, 7-9, 13, 15, and 17-29 are pending in the present application.

35 U.S.C. § 112

Claims 1, 7-9, 13, 15, and 17-29 are rejected under 35 U.S.C. § 112, ¶ 2 as being indefinite because of the recitation “wherein at least a part of the target proteins is separated from the anchors.” More specifically, the Office action states that it is “unclear which part of the target proteins is separated from which anchors.”

Claims 1, 7-9, 13, 15, and 17-29 are further rejected under 35 U.S.C. § 112, ¶ 1 as failing to comply with the written description requirement. More specifically, the Office action holds that because of the specification does not provide written description for the recitation “wherein at least a part of the target proteins is separated from the anchors.”

The relevant recitation in claim 1 has been amended to read: “wherein the target proteins are not proteolytically processed before reaching the protein storage vacuoles, and are separated from the anchors upon reaching the protein storage vacuoles.” This amended claim limitation is supported by, for example, Example 2 (¶ 48), Example 4 (¶¶ 53-55), and Figures 4-8. Applicant respectfully submits that this amendment traverse both the indefiniteness and written description rejections under 35 U.S.C. § 112, ¶¶ 1 and 2.

Claim 1 has also been amended to clarify that the plant is tobacco.

Applicant respectfully submit that these amendments after final should be entered because they are in direct response to the Examiner’s final rejection, and are believed to have put claim 1 in allowable format.

35 U.S.C. § 103 (Non-obviousness)

All pending claims 1 7-9, 13, 15, and 17-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al. (The Journal of Cell Biology, 143:1183-1199, 1998, the “Jiang reference”) in view of Zheng et al. (Plant Physiol., 109:777-786, 1995, the “Zhang reference”) and Goddijn et al. (Trends Biotechnol. 13:379-387, 1995, the “Goddijn reference”).

Claims 1 has been amended as shown above. Applicant respectfully traverse the rejection for reasons detailed below.

First, Applicant disagree with the Office action that it is obvious and expected that the modified construct of the Jiang reference would have produced the results of the construct of claim 1 since the construct of the Jiang reference is structurally and functionally identical to the instantly claimed construct. A person familiar with the field of the present application would expect that the products produced by the construct of the Jiang reference are located in the CM fraction, i.e. membrane proteins, because the proteins are associated with and usually not separated from the membrane anchor, alpha-TIP. For example, the results in comparative Example 4 show that “intact full-length membrane reporter protein was detected in rice seeds.” However, Applicant unexpectedly discovered that the structurally and functionally identical construct as recited in claim 1 produces unexpected results in tobacco seeds. That is to say, only soluble proteins (CS fractions) were found in the tobacco seeds (please see paragraph 54 on page 17). The results are unexpectedly different and suggest that the proteins be separated from the anchor, which is not disclosed or suggested in the Jiang reference or other prior art of record.

Secondly, selecting tobacco seeds as host cells is not obvious over the prior art of record because before the filing date of the present application, there is no teaching or suggestion that “tobacco seed protein storage vacuoles may contain distinct proteases responsible for the processing of the reporter (proteins)” (please see first line on page 18). As a result, “the fact that the reporter protein was separated from the membrane anchor upon reaching the protein storage vacuole will be a great advantage for downstream processing in which the targeted proteins can be enriched and purified easily.” Therefore, the construct of claim 1 of the present application is not obvious over the prior art of record.

Therefore, claim 1 is not obvious over the Jiang reference in view of the Zheng reference and the Goddijn reference, and is thus allowable.

All other pending claims (7-9, 13, 15, and 17-29) are dependent on claim 1, either directly or indirectly. Therefore, they are patentable over the Jiang reference in view of the Zheng reference and the Goddijn reference at least for the same reason as for claim 1.

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Conclusion

In light of the above amendments and remarks, the Examiner is respectfully requested to reconsider the present application, withdraw the rejections, and prepare a Notice of Allowability allowing all the pending claims (1, 7-9, 13, 15, and 17-29).

No fee is believed to be due. The Commissioner is hereby authorized to charge any additional fees which are presently required, or credit any overpayment, to Deposit Account No. 13-0017.

Respectfully submitted,

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